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ABSTRACT

Accomplishment of the objectives in this training module for Child Development Associate (CDA) trainees will aid trainees in advancing children's physical and intellectual competencies, building children's positive self-concepts and individual strengths, and promoting positive functioning of children and adults in group settings. The contents of the module focus first on the teacher's responsibility for mathematics instruction and strategies for teaching mathematics in the preschool. Next, the focus shifts to responsibility and strategies for teaching social science topics and related concepts in the preschool. Focus shifts again to discussions of responsibility and strategies for teaching biological and physical sciences to preschool children. The final two chapters provide resources for the teacher, such as activity and resource unit cards, and guidelines for CDA portfolio development. (Author/RH)

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CHILD DEVELOPMENT ASSOCIATE:

COGNITIVE SKILLS

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OSCAR ROSE JUNIOR COLLEGE

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OKLAHOMA CHILD DEVELOPMENT ASSOCIATE CURRICULUM

COGNITIVE SKILLS

Developed By

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TABLE OF CONTENTS

I	INTRODUCTION TO MATHEMATICS	1
II	DEFINITION OF TERMS	3
III	TEACHER'S RESPONSIBILITY FOR MATHEMATICS	5
IV	TEACHING MATHEMATICS IN THE PRESCHOOL	11
V	INTRODUCTION TO SOCIAL SCIENCE	20
VI	DEFINITION OF TERMS	22
VII	FACTORS THAT INFLUENCE SELF-DEVELOPMENT	24
VIII	TEACHER'S RESPONSIBILITY FOR SOCIAL SCIENCE	28
IX	TEACHING SOCIAL SCIENCE TO YOUNG CHILDREN	33
X	INTRODUCTION TO SCIENCE	40
XI	DEFINITION OF TERMS	42
XII	TEACHER'S RESPONSIBILITY FOR BIOLOGICAL AND PHYSICAL SCIENCE IN THE PRESCHOOL	44
XIII	TEACHING SCIENCE IN THE PRESCHOOL	50
XIV	TEACHER RESOURCES	63
XV	PORTFOLIO DEVELOPMENT	75

CHAPTER I

INTRODUCTION TO MATHEMATICS

RATIONALE

Rudimentary mathematical skills and understandings are being established before children enter school. They are making judgments, the beginning of the reasoning process. The principle of mathematics is discovery. Children begin to use numbers as words before they learn to count, for numerical meaning is discovered through solving a problem.

The world of mathematics, with its related concepts of time and space, require abstract thinking. This ability develops slowly in comparison with other development. A variety of materials and experiences must be available for children to explore and discover the mathematical concepts.

Organizing and understanding mathematical concepts should be an integral part of the curriculum for young children. These children should be provided opportunities for applying these concepts to everyday situations to enable them to internalize such concepts.

Accomplishment of the objectives in this area will foster the individual's development of the following competencies as defined by the Child Development Associate Consortium:

Advances physical and intellectual competence.

Builds positive self-concept and individual strength.

Promotes positive functioning of children and adults in a group.

OBJECTIVES

Upon completion of this area the trainee will be able to:

1. Demonstrate the importance of mathematics in the preschool curriculum by providing opportunities daily for math-concept development.

2. Demonstrate the contribution of mathematics to the development of problem-solving abilities by providing such activities in the curriculum.

3. Demonstrate the ability to sequence mathematics experiences for children from simple to complex.

4. Provide a mathematics center with material to develop math-concepts in the children.

5. Plan, execute, and evaluate learning experiences in math.

6. Execute and evaluate incidental learning experiences for developing math-concepts.

7. Reinforce children's growing interests in numbers, number manipulations, and measurements activities.

8. Assist children in understanding that facility with numbers and number concepts aids in the solution of everyday problems.

CHAPTER II

DEFINITIONS OF TERMS

1. Cardinal numbers---Numbers describing the size of a collection of objects, such as 1, 2, 3, etc.

2. Celcius---Metric measure of temperature.

3. Classification---Grouping such as by color, size, shape, etc.

4. Empty set---A set which contains no elements.

5. Equivalent set---Sets having the same number of members.

6. Gram---Metric measure of weight.

7. Liter---Metric measure of liquid.

8. Member or element---A specific object referred to in a set.

9. Meter---Metric measure of length.

10. Mathematics---The study of the relationships of number, form, and arrangement (Ex., numerals, shapes, seriation, and classification).

11. Number---The cognitive knowledge or concept of the amount of specific objects.

12. Numeral---The symbol or name of a number of objects. Our numerical system, the Hindu-Arabic system, uses ten numerals. These are: 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9.

13. Non-equivalent set---Sets having a different number of members.

14. One-to-one correspondence---The exact match of objects developed.

15. Ordinal numbers---Numbers indicating the position or order in which they come.

16. Quantity---Amount.

17. Rational counting---Counting to find out how many.

18. Rote counting---The repeating of numbers in proper sequence from memory, without realizing the meaning.

19. Seriation---Comparing objects containing certain properties.

20. Series---In order according to dimension in more than one area.

21. Set---A collection of things or objects with something in common.

22. Symbol---A representational form of an object, as a picture of an orange, or the numeral 2 representing 2 oranges.

CHAPTER III

TEACHER'S RESPONSIBILITY FOR MATHEMATICS

RATIONALE

At the preschool level, mathematical instruction should emphasize the development of reasoning processes and the creation of a positive attitude toward mathematics as a continuing part of life.

It must be remembered that much of the child's ability to form concepts is developmental in nature rather than imitative, and is dependent upon the individual child's physical and mental maturity, plus the individual's own experience.

Before children can solve problems involving numbers, they must comprehend the relational concepts of classification and seriation. Also, they must have had the experiences related to number goals: one-to-one correspondence and conservation.

ESSENTIAL CONTENT INFORMATION

I. OBJECTIVES FOR MATHEMATICS IN THE PRESCHOOL

A. Develop the children's reasoning abilities rather than mathematical computation skills.

B. Assist children in learning mathematical skills at their individual developmental levels and rates.

C. Help children to organize mathematics in the world around them.

D. Develop skills necessary for the children to later solve number problems.

E. Help children to hink creatively in the area of mathematics.

II. PRINCIPLES TO FOLLOW IN PRESENTING MATHEMATICAL CONCEPTS

A. Concepts must be introduced gradually.

B. The most basic aspect of a concept must be introduced first and gradually built upon.

C. Concepts should be introduced sequentially and each child should move at his own pace.

D. New materials which are introduced should build on learning that has already taken place.

E. Introduce new materials only as the individual child is ready for it, since the rate will vary from child to child.

F. The children should experience math concepts that are presented through their senses and through motor involvement.

G. Different activities and types of materials should be used to present one concept many times because repetition is essential for understanding.

H. Emphasize the development of reasoning processes rather than memorization or computation skills.

I. Use a multisensory approach (Ex. touching sandpaper shapes, numerals, and counting objects of different colors).

J. Provide time and opportunities for learning mathematics.

K. Provide materials for children to manipulate.

L. Ask questions which stimulate thinking, not seeking "the" answer.

M. Take advantage of "teachable moments".

N. Help clarify child's present concepts and add new concepts in a meaningful way.

III. PRESENTATION OF MATHEMATICAL CONCEPTS

There is a lack of agreement among various authorities as to the specific sequence in which math concepts are introduced. Piaget and others do say that children must master the relational concepts of seriation and classification as well as one-to-one correspondence and conservation before being able to solve problems involving numbers.

A. Classification

Grouping items according to similarities and differences.

1. Preschool children can group according to only one property at a time, e.g., the child sorting wooden chips of different sizes and shapes can only think of the color of the chips or the shape of the chips at one time.

2. Classification skills are a prerequisite to solving numerical problems.

B. Seriation

Seriation is being able to make two or more comparisons and order items along some dimension.

1. It differs from classification in that classification is the grouping of objects only; it ignores the "ordering" within the group.

2. Size discrimination is the prerequisite for seriation.

3. Seriation tasks should first be done with two objects of great difference in size; the child should be able to (verbally) label them as big and little. Then three objects would be introduced, then four, etc.

4. Object seriation should be mastered before picture symbols are introduced.

C. Developing Elementary Numerical Concepts

Before children can solve numerical problems involving quantity and measurement, they must be able to do more than count. The child must be able to perceive differences in properties for which seriation and conservation have provided the background. The following outline shows the sequence for teaching number, numeral and set. Preschool children will probably not advance through all the steps or will only gain very basic understanding of some.

1. One-to-one correspondence---Two sets are equivalent in one-to-one correspondence if each element of one set is exactly duplicated in the other, e.g., one row of checkers is matched exactly in placement of another row of checkers.

   a. Children believe what they perceive.

b. Children identify quantity with the amount of space that is occupied. For example: put six checkers in a row very close together and six in a row spread out; then ask the children which row has more. They will point to the one that is spread out.
c. One-to-one matching activities help children build a logical basis for judging amount.

2. Conservation

The amount of space, matter, or weight remains the same, even through the form is changed, if nothing is added or taken away.

a. Children do not master conservation until about seven years of age.
b. Children must be able to conserve before they can really understand number problems.
c. Activities that emphasize conservation help to begin the children's logical thought processes.
d. Conservation activities deal with arranging, disarranging, and rearranging.

3. Counting experiences

Counting experiences are divided into two areas: rote counting and rational counting.

a. Rote-counting---The repeating of numbers in proper sequence without realizing the meaning of the number.
b. Rational counting---Counting to find the number of objects in a group with an understanding of the relationship between the number and the quantity.

4. Geometric shapes

An understanding of the size and shape of objects and places in the environment.

a. Shapes to introduce
   (1) Circle
   (2) Square
   (3) Triangle

b. Skills to introduce
   (1) Shape discrimination (Ex. matching, seriating, classifying).
   (2) Identifying shapes
   (3) Recognizing shapes in other aspects of the environment.

5. Sets

a. A well-defined collection of objects that is either a perception of objects or a mental pattern of thinking.
b. Skills to develop
   (1) Building sets---equivalent and non-equivalent
   (2) Naming a set
   (3) Reproducing a set
   (4) Associating cardinal numbers

6. Cardinal numbers

a. The name and use of the symbol which shows quantity.
b. Skills to develop
   (1) Understanding of concepts 1-9.
   (2) Names of numerals
   (3) Recognizing number symbols
      (a) Children can first count rationally to "three"
      (b) Then the symbol "3" is introduced
   (4) One-to-one correspondence
      (a) Greater than or more
      (b) Less than or less

7. Ordinal numbers

a. Refer to the order or position of a given number in relation to other numbers.
b. Skills to develop
   (1) Understanding that the numbers 1-9 fit into a special order from smallest to largest quantity
   (2) Understanding of the position of numbers and objects.

8. Units of measure

a. The use of units of measure with the preschool children should relate directly to their experiences.

b. Skills to develop
   (1) Vocabulary usage for various units of measure
   (2) Internalization of the concept of various units of measure. Note: Abstract concepts such as time and money have little value to preschool children. Before and after are time concepts to the preschooler.

9. Simple fractions

   a. Fractions are a part of a whole.
   b. Skills to develop
      (1) The use of fractions with preschool children's personal experiences, e.g., "Here is a half a sandwich."
      (2) Use of the vocabulary "one-half" and "whole" with three and four-year-olds.

10. Money values

   a. Money has value relative to other goods; yet the value of specific coins is difficult for preschool children.
   b. Skills to develop
      (1) An understanding of the function of money
      (2) Use of some vocabulary related to money
      (3) Money will purchase things.

CHAPTER IV

TEACHING MATHEMATICS IN THE PRESCHOOL

RATIONALE

The mathematical concepts that young children need to learn are best presented to them in an informal way with emphasis placed on discovery and exploration of materials. Repeated use of concrete objects that can be manipulated will enhance the children's mathematical abilities through increased understanding and retention. This is because children make sense of the world through their own experiences as they interact with their environment. Many authorities are now seeing motor skill involvement as an essential part of effective learning.

Knowledge of the processes by which mathematical skills are developed allows the teacher to plan math experiences appropriate for the level of the individual child as well as take advantage of spontaneous teaching moments that arise.

ESSENTIAL CONTENT INFORMATION

I. STRATEGIES FOR TEACHING MATHEMATICS TO YOUNG CHILDREN

A. Coordinate the mathematics program with the entire preschool curriculum.

B. Provide a variety of concrete materials and make them available for the child to use over and over.

C. Take advantage of "teachable moments" that spontaneously occur throughout the day.

D. Relate mathematical concepts that are presented to real life experiences which have meaning to the child.

E. Reinforce concepts previously presented by repeating them over and over and by presenting them in many different ways.

F. Assess the developmental level of each child and provide learning experiences appropriate for each child.

G. Plan for the children to experience mathematic concepts through their senses and with body movement to enhance their internalization of such concepts.

II. TECHNIQUES FOR TEACHING MATHEMATICAL SKILLS

A. Classification

The grouping of objects according to some like property. The following are examples of classification systems and items for sorting.

1. Color---pegs, wooden beads, crayons, felt shapes, etc.

2. Shape---Circles together (pop bottle lid, felt circle, sandpaper circle, etc.) and squares together, etc.

3. Size---Big objects together, little objects together, etc.

4. Texture---Rough objects together, fuzzy objects together, etc.

5. Function---Things to play with, things to use in getting dressed, etc.

6. Class---Zoo animals together and farm animals together; fruits together and vegetables together, etc.

7. Location---Things in a bedroom together; things in a barnyard together, etc.

B. Seriation

Making two or more comparisons and ordering items along some dimensions. The following are some examples of seriation activities.

1. Size---Basketball, baseball, softball, tennis ball, golf ball, and ping pong ball; set of measuring cups, sea shells, nested hair rollers, cuisenaire rods, etc.

2. Texture---Sandpaper of varying textures; rocks of varying textures; sets of materials such as cotton, foam rubber, wood, metals, paper, styrofoam, and brick, etc.

3. Weight---Sets of materials ranging from light to heavy; series of film cans filled gradually with increasing amounts of b-b's, rice, etc.

4. Sound and hue---Other types of seriation activities could be soft to loud sounds, light to dark colors, etc. These would be used with children who have mastered more basic seriation tasks.

C. Elementary Number Concepts

1. One-to-one correspondence

Two sets have one-to-one correspondence if each element of one set is exactly duplicated in the other.

2. One-to-one matching activities

a. Make a row of any type item---checkers, pegs, chess pieces, etc. Ask the children to make a row just like it underneath. When they have finished, ask whether the two rows have the same amount. Ask how they know. They should be able to show you by matching one-to-one.

b. Repeat this type of activity many times with different items. When setting the table, passing out napkins, juice, plates, etc., during eating routines and in the dramatic play area.

3. Other types of activities

a. Have each child match by one-to-one correspondence the number of glasses of milk on the table to the children seated at the table.

b. Have each child match by one-to-one correspondence the number of rhythm band instruments to the number of children.

c. Utilize any opportunity in the preschool, such as those below which allow for one-to-one matching.

D. Conservation

To judge space accurately the child must learn to compare it with familiar objects whose size or distance he knows. Distance of an object from the child affects the accuracy with which he will judge its size. The child's own size affects his judgment.

The amount of matter or space remains the same even through its form is changed.

1. Conservation activities

a. Place a number of colored chips in a row. Ask the children to make a row underneath the other without mentioning the

number. Ask them if there is the same number of each of the colored chips. Ask them to tell you why they say there is the same number.

b. Remove one counter and ask whether there is now the same amount. Then ask them why they say that there is. Add two counters and repeat the questions.

c. Place all counters of one color in a row. Place counters of other color adjacent to the row in a random formation. Ask whether there are the same number of pieces and then discern why the children answered as they did.

d. Ask each child to place the counters which were disarranged in a row to match the arranged row. (Now fix the white pieces so that they are like the green ones). The counters now look like this:

● ● ● ● ● ●
o o o o o o

e. Ask whether there are more of one color or whether they are the same. Ask the children to show why each answered that way.

f. Repeat this type of activity many times, as long as the children are interested.

2. Other types of conservation activities for the children, not the teacher, to perform over and over:

a. Change clay balls into sausages and reverse.

b. Pour liquid into different sized containers and back so that the apparent amount of liquid changes, e.g., pour from a tall, thin glass into a short, wide glass.

c. Stack blocks, take the stack apart, then restack.

E. Geometric Shapes

The shapes to be introduced in the preschool are the circle, square, and triangle.

1. Children should first experience the shape with their senses, e.g., by feeling large sandpaper or felt shapes they trace with their fingers.

2. Let the children experience the shape motorically, e.g., draw a large circle on the floor and let the children walk around it, crawl around it, etc.

3. Observe the natural environment and look for shapes, e.g., the clock is round.

4. Play games in which children identify shapes through feeling them, e.g., wooden shapes in a feely bag.

F. Sets

A well-defined grouping or collection. Classification skills are necessary for set-building.

1. Use clear containers with objects inserted to introduce sets.

2. Have children group objects to build sets.

3. Help the children build equivalent sets by matching the components of each set.

4. As the children progress, point out that equivalent sets may have different identifying characteristics such as a set of 5 bottle tops and 5 pop liners.

5. Use dominoes to match equivalent sets.

6. Use children to make equivalent sets (3 boys to 3 girls).

7. To introduce non-equivalent sets, make two equivalent sets. Add a number to one of the sets, and discuss how they are different.

8. Using clear containers and objects, let the children make their own non-equivalent sets.

9. Give a name to a set.

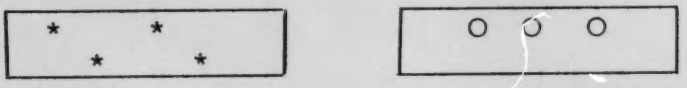
10. Allow children opportunities to reproduce sets made by the teacher.

11. Allow children to produce their own sets with objects and verbally label.

12. Ask children to produce a specific number into a set.

13. Help children apply the concept of addition by joining sets of objects, such as a set of 2 balls and a set of 2 balls joined, equals a set of four.

14. Help children apply the concept of subtraction by displaying 2 sets of non-equivalent sets.



Ask questions: How many X's are in the set? How many O's are in the set? Are they the same in number? How many X's would we have to take away to make them equivalent? (X's and O's represent objects set on tables, trays, etc.)

G. Counting Experiences

There are two types of counting: rote counting and rational counting.

1. Ask the children to count objects and touch each object as they say its number name.

2. Use a muffin tin or egg carton and place 1 item in the first cup, 2 in the second, etc. As the children to count the number of objects in each cup and point to each as they do so.

3. Play many counting games, fingerplays, singing games, etc., which involve rational counting.

4. Give children different manipulative materials such as blocks or wooden chips and ask them to build sets. Sets of two or three should be mastered before advancing to ones containing more.

H. Cardinal Numbers

The number of objects in a set.

1. Many activities occur as a part of the daily routine which lend themselves to the teaching of cardinal numbers, e.g.:

   a. Counting the number of boys and the number of girls at the table.
   b. Counting the number of objects the children collect on a nature walk.
   c. Looking at the monthly calendar and counting how many children have birthdays and identifying the numeral to represent the number.

2. Other activities are planned as part of the program to give practice in the use of cardinal numbers and numerals, e.g.:

   a. Use number lotto.
   b. Present sandpaper, felt, or written numerals in random order and ask them to name the numeral.
   c. Have the children construct sets and give them sandpaper numerals to label the sets.

I. Ordinal Numbers

The order or position of a given number in relation to other numbers. It tells which one.

1. When children are sitting in a circle, identify who is first, second, etc.

2. Have children tell you their first, second, and last names.

3. Have children follow directions involving ordinal positions, such as "Bring me the third book on the shelf."

4. Have children identify the ordinal position of objects in pictures, charts, and on the flannelboard.

5. Have children order objects in sequence. Scramble them and have children reassemble them.

J. Units of Measure

The use of units of measure with preschool children should relate directly to them and their own experiences.

1. Size---Indicate two objects and ask the children to show the "big" one. Continue this with other comparisons. Introduce "little" into this only after "big" is mastered.

2. Quantity---Have two identical glasses, one containing more water than the other. Ask the children which one has "more." Continue this procedure with other comparisons. Introduce the opposite adjective after "more" is mastered.

3. Position---Play directional games with children such as "Follow the Leader," "Simon Says" to stand 'beside' someone, to get 'under' something, and to go 'around' the slide, etc.

4. Weight---Introduce the concepts of "heavy, heavier, heaviest," through lifting objects. The use of a simple balance scale is good.

5. Time---This is a very difficult concept for young children. It should be used in relation to each child's own experience, such as the daily schedule at school or routines at home. Eventually each child can begin to perceive the tools for measuring time, such as clocks and calendars.

K. Simple Fractions

The use of fractions with preschool children relates to their personal experiences and are presented informally.

1. Provide sharing opportunities such as "half an apple," "half a sandwich," etc.

2. Compare blocks and others items "half as big," etc.

3. Plan cooking lessons and use measuring utensils. Draw picture recipes for children to "read."

4. Measure milk or juice from quart into fractional parts in cups for lunch.

L. Money and Money Values

Concentrate on the function of money and vocabulary related to the use of money.

1. Encourage children to play store in the classroom.

2. Dramatize: Going to the movies, a concert, or the circus, or a special treat that requires money or a ticket.

3. Introduce the penny, nickel, and dime to four-year-olds.

CHAPTER V

INTRODUCTION TO SOCIAL SCIENCE

RATIONALE

Social science is an integral part of every child's daily life. Through its study, children should develop an understanding of and sensitivity to the forces at work around them. Social science is designed to help each child function both as an individual and as a member of the family, community, and world.

The full development of children's understanding of social science is a large task; it requires that they be introduced to the variety of social and environmental forces around them.

The teacher of young children should provide learning experiences in all of the social science and related areas to provide a well rounded program for the development of children.

It is the teacher's responsibility to assure that all children develop positive self-concepts, both as individuals and as members of various groups of which they are a part.

Accomplishment of the objectives in this area will foster the individual's development of the following competencies as defined by the Child Development Associate Consortium:

Advances physical and intellectual competence.

Builds positive self-concept and individual strength.

Promotes positive functioning of children and adults in a group.

OBJECTIVES

Upon completion of this area the trainee will be able to:

1. Demonstrate the importance of social science in the curriculum of young children by providing opportunities daily for social science concept development.

2. Demonstrate the ability to develop positive self-concepts through verbal and non-verbal guidance of children.

3. Provide a social science center with equipment and materials to stimulate investigation and exploration of social science concepts.

4. Plan, implement, and evaluate learning experiences in social science, with a minimum of two in each of the following areas: citizenship, civics, conservation, economics, history, geography, international understanding, anthropology, sociology, and ecology.

5. Implement and evaluate incidental learning experiences to develop social science concepts.

6. Design learning activities to promote understanding in children of such concepts as self, family, community, and world.

CHAPTER VI

DEFINITIONS OF TERMS

1. Bigotry---Having a closed mind or being intolerant of beliefs other than one's own in regard to church, political party, race, opinion, etc.

2. Community---An interacting population composed of various kinds of individuals living in a common location.

3. Community helpers---The variety of people who supply services and goods which make it possible for the community to exist.

4. Conservation---The act of preserving from loss or waste.

5. Cultural group---A collection of people classed according to traits and customs they have in common.

6. Ecology---A branch of science concerned with the interrelationships of organisms and their environment.

7. Extended family---A family that includes, in one household, near relatives as well as a mother, father, and their children.

8. Family---A group of related people who live together in one household.

9. Nuclear family---A family group composed of a mother, father, and their children.

10. Pollution---The condition of being made unclear or contaminated.

11. Recycling---Using materials over again or processing in order to regain material for human use.

12. Role---A more or less fixed way of behaving, which is forced on a person by the culture in which that person lives.

13. (The) Self---The "I" as separate from the "You."

14. Self-Image---The view one has of oneself.

15. Siblings---One's brothers and sisters.

16. Social institution---A significant practice, relationship, or organization in a society or culture.

17. Social problems---Contemporary social concerns which society defines as not being in its best interest.

18. Social relationships---One's relationships with others.

19. Social science---A branch of science that deals with the institutions and functioning of human society and with the interpersonal relationships of individuals as members of society.

20. Social studies---That part of the early childhood curriculum concerned with the study of basic social relationships and the functioning of society and people.

21. Stereotype behavior---The type of behavior expected of individuals because of their socio-economic class.

22. Transportation---The means of travel from one place to another.

23. Vehicle---The equipment used to move persons or objects from one place to another.

CHAPTER VII

FACTORS THAT INFLUENCE SELF DEVELOPMENT

RATIONALE

Teachers as well as children should be aware of the many factors which influence personal decision making. Teachers need to be aware of their own needs and desires as well as the needs and desires of children.

ESSENTIAL CONTENT INFORMATION

I. PHYSICAL FACTORS

- A. Physical Handicaps and Limitations
- B. Characteristic Rate of Energy Output
- C. Rate and Pattern of Growth
- D. Maturity Level
- E. Health History
- F. Current Health
- G. Health Habits
- H. Skill in Managing the Body
- I. Appearance and Grooming

II. AFFECTIONAL (LOVE) RELATIONSHIPS

- A. Relationships With:
  - 1. Mother
  - 2. Father
  - 3. Sibling(s)

4. Other family members

5. Teachers

6. Special friends

7. Caregivers

B. Family Constellation

C. Climate of Love in the Family

III. CULTURAL (SOCIALIZATION) FACTORS

A. Subcultures

1. Masculine-feminine

2. Rural-urban-suburban

3. Regional

4. Ethnic

5. Social class

6. Race

B. Geographical Mobility

C. Social Class Mobility

D. Participation in Social Institutions

E. Values of School and of Teacher

F. Values of Home

IV. PEER GROUP FACTORS

A. Characteristic Activities of the Peer Group(s)

B. Customs and Codes of Conduct of Peer Group(s)

C. Roles Afforded by Peer Group Activities

D. Adherence to Peer Group Customs and Codes

E. Rules Played in Peer Group Activities

F. Status in Peer Group: Belonger, Leader, Clique Member, Fringer, Isolate, Rejectee

G. Mobility in Peer Group

V. SELF-DEVELOPMENT FACTORS

A. The Development of Intelligence

1. Action relationship to environment

2. Imagery relationship to experience

3. Skill in symbolizing elements of experience and meaning

4. Scope of experiences in life-span

B. Cognitive Processes and Cumulative Experience Meanings

1. Remembering experiences

2. Observing the characteristics of things, processes, and events

3. Finding common elements in experiences

4. Discovering causality

5. Learning to analyze events

6. Discovering that one can influence events

7. Learning to define problems in terms of characteristics and knowledge of causality

8. Discovering alternative solutions to problems and learning to test them for effectiveness

9. Combining elements of experiences in order to create beauty, or stories, or music, or dances

10. Purposely combining elements of experience in order to invent needed things, equipment, procedures for accomplishing goals, or new social groupings.

C. Self-Organizing Factors and Concept of Self

1. Perception of self

2. Concept of self

   a. Distinctive characteristics
   b. Resources and assets
   c. Lacks and limitations
   d. Background and origin
   e. Purposes and goals
   f. Interests
   g. Values
   h. Ethical code

3. Attitudes

   a. Feelings about self, people, events, institutions, etc.
   b. Attitudes of self-esteem or self-reproach
   c. Feelings about one's status (present and future)

VI. SELF-ADJUSTIVE PROCESS

A. Situations and Experiences that Evoke Pleasant or Unpleasant Emotional Behavior

B. The Patterning of Behavior While Experiencing Emotion

C. Adjustment Mechanisms

Based on the Six Area Framework developed by Dr. Daniel Prescott, founder of the Institute for Child Study, University of Maryland, College Park.

CHAPTER VIII

TEACHER'S RESPONSIBILITY FOR SOCIAL SCIENCE

RATIONALE

Teaching social science is best accomplished when it is directly related to the children's world. Therefore, learning in the area of social science is promoted through the basic social relationships that children maintain in their everyday experiences.

The social science goals of a quality early childhood program should promote such early learning experiences as valuing oneself and others, developing of harmonious social relationships, developing of responsibility for property and material, appreciation for community resources and acquiring a general knowledge of the world.

ESSENTIAL CONTENT INFORMATION

I. IMPORTANCE OF POSITIVE SELF-CONCEPT

A. The perception children have of themselves influences their behavior, therefore affecting their success as social and intellectual beings. Children must feel good about themselves in order to establish and maintain satisfactory human relationships.

B. Characteristics of Children Who Maintain Positive Self-Concepts

1. They communicate well with others.
2. They can accept authority, but will test limits.
3. They engage in group activities with ease.
4. They use their own names to refer to themselves.
5. They are self-directed.
6. They demonstrate autonomy.
7. They demonstrate high self-esteem (rooted in family experiences.

8. They demonstrate self-reliance.

9. They demonstrate self-control.

10. They are curious and explore a great deal.

11. They are content and relaxed.

12. They demonstrate curiosity.

13. They are comfortable enough to ask for help when it is needed.

14. They are actively involved.

15. They are assertive.

II. GROUP MEMBERSHIP

Young children need help in adjusting to the demands of group living. The concept of group living is related to children through family units and preschool groups. Children must have an understanding of group concepts so that they can have success in group relationships.

A. The Family

1. Children come from a variety of families.

   a. Nuclear or traditional families
   b. Single parent families (single male, single female)
   c. Foster homes
   d. Group living situations
   e. Surrogate parents (adults living together)
   f. Orphanages
   g. Adoptive parents
   h. Two parent families (divorced parents in a remarriage)
   i. Grandparents as caregivers

2. Children come from a variety of different socio-economic situations.

   a. Employed
   b. Unemployed
   c. Unmarried
   d. Full or part-time worker or student

3. Children have different living conditions.

a. Military (move more)
b. Migrant
c. Cultural differences
d. Live in apartments, condominiums, duplexes, houses, trailers.
e. Urban and rural backgrounds

B. The Preschool Group

1. Demands of preschool living are different from those required in the family unit.

2. Children must be helped to accept gradually the modifications of their behavior which are required in the preschool group.

III. THE COMMUNITY

A. Preschool children develop great curiosities about their surroundings. As toddlers their "world" was composed mainly of home, yard, and immediate neighborhood. Now, however, they are ready to learn more about the community.

B. Components of the World of Children

1. My self

2. My home

3. Other homes and people in my neighborhood

4. Buildings in my community

5. Community helpers

6. Transportation

IV. CUSTOMS AND SPECIAL OCCASIONS

Children need the knowledge of different cultural groups and their customs. It is acceptable for a teacher to recognize the different celebrations of

special occasions relative to different cultural groups. Acknowledge the fact that people celebrate holidays in different ways. Some special occasions which might be included are:

A. Birthdays

Birthdays should be planned with individual children in mind.

B. Halloween

The frightening figures of ghosts and witches are inappropriate ways of introducing this occasion to young children. The pleasant idea of fall harvest should be stressed.

C. Thanksgiving

D. Christmas

E. Hanukkah

F. Valentine's Day

G. Easter

V. PEOPLE AROUND THE WORLD

Children need to develop a basic understanding of other cultural and racial groups. However, children should develop true concepts about the various racial and cultural groups which are represented in their own preschool groups.

A. Children around the world are alike in many ways.

1. They all have families.

2. They all have homes.

3. They all enjoy playing.

4. They all must eat and sleep.

5. They all have feelings.

6. They all have different ways of speaking.

B. Children around the world are different in some ways.

1. Their homes differ.

2. Their toys and the games they play differ.

3. The clothes they wear are varied.

4. The food they eat is different.

5. The way they talk is different.

C. There is more than one way to live; no one way is best or right for everyone.

D. Recognize the different ethnic groups, such as:

1. Native Americans (American Indians)

2. Afro-Americans (Blacks)

3. Mexican-Americans (Chicanos)

4. Puerto-Rican Americans

5. Chinese-Americans

6. Japanese-Americans

7. Italian-Americans

8. Jewish-Americans

CHAPTER IX

TEACHING SOCIAL SCIENCE TO YOUNG CHILDREN

RATIONALE

Learning in the area of social science should come from the world in which children live. The teacher should take advantage of the experiences children have in their everyday living and incorporate these into the learning process.

ESSENTIAL CONTENT INFORMATION

I. STRATEGIES FOR TEACHING A POSITIVE SELF-CONCEPT TO YOUNG CHILDREN, INCLUDING CITIZENSHIP AND CONSERVATION

A. Self-Concept

The self image influences the behavior of children. Teaching children positive self-concepts is accomplished by encouraging verbal expressions. It is important to take advantage of each experience children have in their environment, including the many academic experiences they have in school.

1. Use a child's name when speaking or referring to that child.

2. Identify the children's lockers with their names printed in large manuscript.

3. Sing songs and play games which require the child to "tell us your name."

4. Use correct names for the parts of the child's body.

B. Citizenship

Citizenship education is a part of children's self-worth. Children should be taught that each person has worth and dignity, although we are not all alike.

1. Introduce each child in the class by using first and last names.

2. Discuss how the children are alike and how they are different.

3. Encourage children to participate in limit setting for group living in the center.

C. Conservation

Teaching of conservation is an important factor relative to the child's self-image. Information presented to the children should be appropriate for and compatible with their level of development.

1. Encourage the children to care for their own personal possessions. (Ex. clothing, school work)

2. Help children learn to clean up after work period.

3. Turn off lights and water at home.

4. Pick up trash at home.

II. STRATEGIES FOR TEACHING GROUP MEMBERSHIP TO YOUNG CHILDREN IN THE HOME AND CIVIC RESPONSIBILITY

A. Family Relationships

The family is the basic social unit in our society. Children can associate themselves with this group membership by their own daily activities in the home.

1. Identify and describe family members.

2. Play different roles of family members.

3. Use examples presented in books and songs about role relationships.

B. Civics

Children should learn respect for rules and regulations. The basic concept should be that rules can help us live happily together.

1. Participate in discussion of "limits" or "rules" regarding play equipment.

2. Make plans for taking a walk, Explain to the children how to cross the street and the need for sidewalks. Of course, many other illustrations can be drawn here.

3. Discuss limits regarding interpersonal behavior in the center, at home, and outside the home.

4. Introduce and discuss regulations regarding appropriate behavior for preschool environment in keeping the center safe and healthy.

III. STRATEGIES FOR TEACHING THE WORLD IN WHICH WE LIVE TO YOUNG CHILDREN

The geography of where you live and the relationship of scientific and social change are both parts of the world about us. We must remember that environmental education helps preserve the world in which we live.

A. Geographical

The young child should have an understanding of the different modes of travel and communication.

1. Take a bus or train ride.

2. Visit the airport.

3. Send messages by mail.

4. Make telephone calls.

B. Transportation

Transportation is defined in terms of the egocentric child relating his or her body to its surroundings.

1. Things that go (Ex., feet, roller skates, skateboards, trikes, and bikes).

2. Land transportation

3. Water transportation

4. Air transportation

5. Identify, describe their function, classify, and seriate them.

C. Environmental

Water and air can be polluted. Many familiar sounds can cause noise pollution.

1. Observe effects of air pollution on one's eyes and breathing.

2. Point out the effects of water pollution in areas where children swim.

3. Identify sounds which contribute to noise pollution.

4. Make a plan to reduce noise at school.

5. Make a plan for cleaning the room.

6. Observe the disposal of waste.

7. Develop a solar system. (Ex. a bowl covered with foil to melt cheese.)

IV. STRATEGIES FOR TEACHING AMERICAN HERITAGE, CUSTOMS, AND THE CELEBRATIONS OF SPECIAL OCCASIONS TO YOUNG CHILDREN

A. Description

Children should have an understanding of the great ideas in the history of America. Recognizing events will give children a chronological series or a time-line to work from and the concept that simple time relationships exist. Differentiating between the past and the present gives a child a sense of history.

1. Celebrate holidays.

2. Use photos of then and now (Ex. use a picture of the teacher as a little girl or boy and a recent photo).

3. Discuss how time is measured (clock and calendar).

4. Discuss important events in the lives of children.

5. Observe changes in neighborhoods and towns. Discuss reasons for these changes.

C. Guides for Holiday Celebrations

1. Space over two or three weeks the various activities connected with the holiday.

2. Plan the final holiday event to the actual holiday but not on the same day.

3. On the day of the school celebration, avoid over-stimulation. Plan usual activities and limit the special celebration to one or at the most one and one-half hour.

4. Remember that the children are more important than the activity.

5. Holiday activities for the children should be familiar activities which have been varied in some small way to fit in with the holiday theme.

6. Attitudes of teacher are important.

7. What teacher decides to do depends on:

   a. Age
   b. Experiences and interests of the children
   c. Ethnic makeup
   d. Strength and involvement of the parents
   e. Community resources available.

V. STRATEGIES OF TEACHING A BASIC UNDERSTANDING OF CULTURAL AND RACIAL GROUPS TO YOUNG CHILDREN

A. Description

Children should have an understanding of how others live and the contribution of others. People live according to certain, values, skills, and tradition.

B. Teaching Ideas

1. Learn games and songs of children in other lands.

2. Invite people from other lands to talk with the children.

3. Observe the different homes in which people live.

4. Talk about how each family celebrates holidays and birthdays.

5. Dramatize social skills in song and in learning areas.

6. Invite parents of other cultures to visit the classroom and bring artifacts of their culture.

7. Invite people of other cultures to model clothing and jewelry.

8. Invite people of different cultures to prepare food unique to them.

VI. STRATEGIES OF TEACHING A BASIC UNDERSTANDING OF DIFFERENT OCCUPATIONS AND SEX ROLE IDENTIFICATION

A. Children should have an opportunity to explore the way different people help us.

1. The plumber

2. The electrician

3. The mechanic

4. The telephone lineman

5. The food service person

6. Secretaries

B. All workers are alike and they are different.

1. Workers can be men or women.

2. Workers have families.

3. Workers like for us to be friendly and considerate.

4. Workers have special clothing.

5. Workers have special tools.

6. Workers have special jobs to do which help us.

CHAPTER X

INTRODUCTION TO SCIENCE

RATIONALE

Science study comes naturally to young children as they are active, curious, and enjoy manipulating and experimenting with objects. They are constantly asking questions of discovery---when, how, where, and why?

The approach to teaching science is through "process." It offers children the opportunity to participate in the processes of science such as inquiry, discovery, and exploration; and to begin to develop skills of observation, description, problem solving, classification, relationships, logical reasoning, and inferring.

All children must be allowed to progress at their own rates---from concrete learning or facts to concepts and then abstract generalization. They cannot be rushed; understanding will evolve more easily with the provisions of a variety of materials and experiences with which they can be involved.

Learning experiences for children must take into account the various environments of the children and relate unknown concepts through known cues.

Incidental learning activities frequently arise when working with young children. The perceptive teacher will follow these opportunities with further experiences and promote the seeking of answers in the children.

Accomplishment of the objectives in this area will foster the individual's development of the following competencies as defined by the Child Development Associate Consortium:

Advances physical and intellectual competence.

Builds positive self-concept and individual strength.

Promotes positive functioning of children and adults in a group.

OBJECTIVES

Upon completion of this area the trainee will be able to:

1. Demonstrate the importance of science in the curriculum of young children by providing opportunities daily for science concept development.

2. Demonstrate the ability to develop problem solving abilities in children by asking questions and providing experiences for answering the questions.

3. Stimulate creative thinking and problem solving in children through activities that lead to discovery of something new or an answer.

4. Provide a science center with equipment and materials to stimulate exploration and investigation of science concepts.

5. Plan, implement, and evaluate a learning experience in science, in biological science, in physical science, math, social science, ecology and energy conservation.

6. Expand the science experiences to include learnings in all areas of science: for example: hydrology, botany, chemistry, physics, mathematics, social science, ecology, etc.

7. Describe and evaluate incidental science experiences with young children.

8. Design and implement a prop box related to a specific learning unit or scientific theme.

CHAPTER XI

DEFINITIONS OF TERMS

1. Biological science---The study of living things.

2. Classification---Grouping objects according to properties.

3. Cognition---According to Jean Piaget means "to know." Others might define it as "the process of knowing."

4. Content areas---In curriculum planning, this includes classification, seriation, temporal relations, spatial relations.

5. Energy---Most basic source that makes up both non-living and living things.

6. Experiment---An organized method of problem solving planned to test ideas, make observations, and to help the child come to accurate conclusions.

7. Index level---A level of representation involving clues to an object.

8. Key concepts---Basic fact in a given area.

9. Levels of operation---Verbal and motoric behavioral response to stimuli.

10. Matter---Anything that has weight or takes up space.

11. Object level---A level of concrete representation.

12. Physical science---The study of non-living things.

13. Science---The organized study of things around us.

14. Science of earth and universe---The study of the components of the earth and natural phenomena surrounding our earth.

15. Science of man and his environment---The study of how people adapt to work with elements in their environments for more comfortable, effective lives.

16. Scientific method of problem solving---A sequence of steps used to solve a problem.

17. Seriation---Placing objects in order according to properties.

18. Sign level---The word identifying an object.

19. Spatial relations---The relationship of things in space.

20. Symbol level---A level of representation demonstrated by recognition of the production of the object in pictures, clay, etc.

21. Temporal relations---Time relationships.

CHAPTER XII

TEACHERS' RESPONSIBILITY FOR BIOLOGICAL AND PHYSICAL SCIENCE IN THE PRESCHOOL

RATIONALE

Science is all around us; thus, the teacher of young children must develop an awareness of the learning opportunities available for developing science concepts in children. Science experiences are both planned and incidental; however, the alert teacher will follow through on both with reinforcing activities.

It is the teacher's responsibility to become acquainted with the many aspects of science. In this way, the curriculum will be broadened, and the children will be encouraged to explore, observe, and experiment to solve problems and new situations.

ESSENTIAL CONTENT INFORMATION

I. OBJECTIVES IN TEACHING SCIENCE TO THE YOUNG CHILD

The teacher needs to keep these objects in mind for teaching science to preschool children.

A. To develop in children the ability to solve problems through the use of scientific methods:

1. Capitalize on questions and the natural curiosity of children.
2. Help children say exactly what they want to find out.
3. Help children become aware of ways to find out. Call methods by name: Observing, experimenting, listening, etc.
4. Keep trying things together (Ex., "What did we do yesterday to find out? Let's try it again.).
5. Name these experiences as science.

*Source: Leeper, Sarah, et al. Good Schools for Young Children. New York: MacMillan Publishing Company, 1974.

6. Encourage both sexes to participate.

7. GUIDE discovery to the correct conclusion without TELLING the child the answer.

8. Remember HOW it is discovered is as important as WHAT is discovered.

B. To Develop in Children a Scientific Attitude

Characteristics of this attitude are not jumping to conclusions, carefully weighing all sides of a problem, evaluating the source, not being closed minded.

C. To Help Children Learn Some Subject Matter

The academic matter can be overly-stressed in the preschool, but too often it is neglected.

1. Keep information at the children's level; however, do not underestimate their abilities or interests.

2. Plan and intend to have children learn some science concepts.

3. Help children recall and relate information---to put ideas together.

4. Record concepts children have learned. Use this to further their learning.

D. To Develop in Children an Awareness, Interest, and an Appreciation in the World Around Them

1. Build upon present interests of children.

2. Plan for success and "fun" in their experiences so that interest will grow.

3. Encourage children to discuss, listen, think, evaluate, observe, manipulate, and wonder.

4. Present questions, materials, and/or problems that open new interests for children.

5. Be interested! Enthusiasm is contagious! Children respond to someone who is interested in science themselves.

II. KNOWLEDGE NEEDED FOR AN EFFECTIVE SCIENCE PROGRAM

A. How Children Learn

1. Children learn through their senses. They learn to observe, discriminate, describe, and to compare from information gained through their senses.

   a. Sight---Long, longer, longest; big-little; high-low, etc.
   b. Hear---Quiet-noisy; bell sounds; shaking sounds, music, etc.
   c. Taste---Sweet, sour, salty, bitter
   d. Smell---Every object has its own scent. Some scents are pleasant, some are not. Objects may be identified by their odor: musty, sweet, etc.
   e. Touch---Hard-soft, smooth-rough, warm-cold, etc.

2. Preschool children need a great variety of experiences. Because they have had little experience, nothing is too basic for them to explore. Children need to be involved with real things; science experiences can meet those needs. REAL shells, REAL rocks, REAL cookie dough, REAL grass, REAL puppies---all need to be seen, listened to, smelled, touched, and some even tasted. Natural phenomena like snow, wind, rain, temperature need to be experienced. Therefore, provide first hand experiences with real objects and real problem-solving materials for the children to manipulate and explore.

B. Basic Areas of Science

1. Physical Science (non-living things)

   a. Matter and energy
   b. Our earth abd the universe
   c. Our environment

2. Biological Science (living things)

   a. Plants
   b. Animals

c. Human body

3. Ecological Science

a. People in their environment
b. The relationship of things to each other

C. Key Concepts of Science

1. Change---The universe is constantly changing.

2. Space---The universe is very large.

3. Time---The universe is very old.

4. Adaptation---Life is constantly adapting to the environment.

5. Variety---People are different. Many varieties of plants exist. Animals are alike and different. Objects (rocks, shells) are alike and different.

6. Interdependence of living things---All forms of life compliment each other: they help maintain balance in our universe.

7. Energy---Energy is involved in all motion; change is energy. Energy can be recycled.

D. Teaching Science to Preschool Children

1. Assist children to inquire and answer their questions.

a. Guiding children's thinking through skillful use of questions is important.
(1) For clarification: "How would that work?"
(2) For direction attention: "Have you noticed that . . ?" or, "This is puzzling; how do you suppose . . . ?"
(3) For stimulating thought and speculation: "Have you ever wondered about . . .?" or "Have you thought of it this way?"

b. Ask questions so they are answerable for children, or will lead them to find the answer. DO: "When you jump up, do you always come down?" (Child can answer) DON'T: "What makes you go down when you jump up?" (Child cannot answer.)

c. Answers should be given after the child has had time to speculate and explore. Avoid giving answers too readily.
d. DISCOVER WHAT THE CHILD IS THINKING, and take it from there.

2. Help find the answer.

a. Through observation, experimentation, or research.
b. Through the use of the scientific method of problem solving:
(1) Initiate curiosity.
(2) Identify problem.
(3) Hypothesize: Speculate what the answer might be.
(4) Plan experiment: Suggest what we might do to find out.
(5) Identify results: Observe and interpret your discoveries and draw conclusions.
(6) Predict: Suggest what would happen if experiment were repeated.
(7) Explore other possibilities:
(a) Other ways of testing by hypothesis
(b) Other things to experiement.

E. Plan the Science Curriculum

1. Children's interests are important in planning the science curriculum, but a dependence on them for total program development often results in content gaps.

a. Children do not always express interest.
b. Children cannot easily express ideas in areas which they know nothing.

2. Develop basic concepts for curriculum.

a. Build concepts around areas of science.
(1) Living things
(2) Matter and energy
(3) Earth and universe
(4) People and their environment
b. Integrate science learnings with other experiences.
c. Provide concrete experiences.
(1) A real orange, its juice, sliced, peeled, its sections, its peel, its seeds, its pulp

(2) Frozen orange juice, juice in a can, an orange tree
(3) Pictures of oranges, trees
(4) The word orange in its printed form

d. KEEP ON THE CHILDREN'S LEVEL
(1) Keep wording simple.
(2) Keep concepts simple and basic.

e. Offer variety and balance in the activities in which the children will participate.
(1) Field trips
(2) Experiments
(3) Educational media
(4) Observations
(5) Resource people

f. Offer several different activities to teach the same concept. Children learn through repetition.

CHAPTER XIII

TEACHING SCIENCE IN THE PRESCHOOL

RATIONALE

Opportunities for learning and teaching science to preschool children can be found in almost every preschool center. The teacher who takes advantage of these opportunities can provide children with experiences in exploring, experimenting, questioning, problem solving and developing an awareness of their relationship to the world around them.

ESSENTIAL CONTENT INFORMATION

I. METHODOLOGY---INQUIRY METHOD

A. Children will gain knowledge of the world around them by acquiring knowledge, skills, methods, and attitudes of science.

B. Children should become aware of basic "laws" and processes. (For example, seeds need water to grow.)

C. Children need to explore methods of science: observation, testing ideas, and measurement.

D. Guidelines for Using the Inquiry Method

1. They must get first hand experience with material, living animals, and plants. This means opportunities to observe and interact with the conditions, situations, and processes involved in scientific inquiry.

2. Children need to be provided with repeated experiences with a particular principle to observe causal relationships.

3. A questioning attitude should be encouraged among children. We won't really know what will happen until we try or test ideas.

4. Allow for maximum participation by children and opportunities to explore by independent investigation. Children are active investigators, not passive observers. By asking questions ourselves, we help children formulate questions on their own.

5. Ask questions to which a child can respond.

   a. "Can, is, will" and "did" can often be answered by yes or no.
   b. "Why" and "How" ask for more complex answers.
   c. "Who, what," and "when" may often require specific information and may or may not be easy to answer. This is what would be inappropriate.

6. The point in selecting questions carefully is to phrase them so that they are answerable by the children or will lead them to search for the answer.

E. Planning for Science Experiences

1. A science or discovery corner provides opportunities to explore and share experiences.

2. Selecting a theme specifically for science, such as changes, tracks, machines, designs things, structures, sensations, classifications, shadows, or liquids and solids.

3. Planning experiences in the outside environment

   a. Planting seasonal shrubs, and observing changes in nature throughout the year.
   b. Observe rain drops, water flow, puddles drying up, moisture on grass (dew), wet cement on humid mornings.
   c. Being aware of evaporation by observing moisture on cement rocks, and by using water on chalkboard, watching the water level in the aquarium.

F. Asking Questions with Children

1. Hypothesize: What do we think will happen if we add salt, sugar, or flour to the water?

2. Describe the result: What happened?

3. Predict: What will happen if we add salt? sugar? again?

4. Explore other possibilities. Soda? Will this soap sink or float? This block of wood? This metal washer? etc.

5. When asking questions, begin with "Does," "if," "can you," "How can we," "what will happen if,"

6. Examples of questions to ask children

-- What would a squirrel do with a tree?
-- How do animals help us?
-- What does a cow look like and are cows like horses? How are they different?
-- Are horses big or small?
-- What part of your body do you use for seeing?
-- What are twins?
-- Can a boy and a girl be twins?
-- What part of your body is used for touching?
-- Does water look different when it is frozen?
-- Did you look different when you were a baby?
-- Is ice hard when it melts?
-- Can you touch steam?
-- Do you have skin? Where is it?
-- What is your favorite (best) taste?
-- Does chocolate melt?
-- Does chocolate taste the same when it is melted?
-- Do colors (red, blue, yellow) have a taste? How does red taste? etc.
-- Is talking softer or louder than whispering?
-- What is a whisper? Show me.
-- What part of your body do you use for smelling?
-- What is another way to use your nose?
-- Do colors smell? Does green always smell the same?
-- Does an onion smell when you cut it open? Tell me how it smells.
-- Do you smell the same as your friend?
-- Do animals smell? Why? How?
-- Are your eyes the same color as your friend's?
-- We have noise pollution and water pollution, so can we have smell pollution, eye pollution? Garbage and trash littering discussion follows. (Use pictures or photographs)
-- What is the difference in this cupcake and this cupcake batter? Taste, feel this potato and this potato (cooked and uncooked)
-- How did this sweet potato get to be like this sweet potato (compare and taste)
-- Do twins have the same birthday or a different birthday?

-- Using a prop box of hats made from many different fabrics, ask:

Find a hat worn in the summer.
Find a hat a fireman would wear.
Find a hat with a design.
Find a hat that has plain material.
Find a bumpy hat, a hard hat.
Who would wear a hard hat?
What color is this hat? etc.
Find a hat a train engineer would wear.
What kind of design does the engineer's hat have?
What is the smallest hat in the box?

Use a mirror and place the box near a dramatic play area after the discussion.

-- What do we get at the meat counter in the grocery store? a flower? a tree? etc.
-- What sounds can we make with our bodies? Fingersnapping, clapping, whistling, singing, etc.
-- Where are your bones? or do you have bones?
-- When your lights go off, who can help you besides dad or mom?
-- Does electricity work without wires?
-- Can we make electricity (static) ? hair and hair brushes
-- Do carpenters work in the rain, snow, or dark?
-- Do we need water to drink? If the water is off who helps us? (plumber)
-- What else do we need water for besides drinking?
-- If your car is broken and won't run who can help you? (mechanic)
-- Are all cars the same? How are they alike? Different?
-- What does a waiter or waitress do in a restuarant? Can a man be a waitress? Can a woman be a waiter?
-- How is this hanger used? a baby clothes hanger, a sweater hanger, pants hanger, a coat hanger (wooden), a skirt hanger, etc., plastic, wood, metal hangers, etc.
-- How is this zipper used? Longest? shortest? sequencing length
-- Place these buttons in piles of buttons that are alike.
-- How do trees help us?
-- Does food change when we cook it?
-- Could the sun help us cook?

II. BIOLOGICAL SCIENCE---AREAS AND CONCEPTS

A. Human Body

1. Each person has special characteristics (self-concept).

2. Our bodies have many likenesses and differences.

3. Each part of our bodies has a special function.

4. We learn through our senses.

5. Boys' and girls' bodies are different in some ways.

6. Our bodies need proper care in order to function well. They need food, exercise, shelter, protection.

B. Plants and Animals

1. Living things have biological needs.

   a. ANIMALS need food, shelter, protection.
   b. PLANTS are living things. Like animals, they need air, food, sunlight, water, and protection.

2. Many different kinds of animals and plants exist.

   a. ANIMALS differ in color, size, shape, coverings, number of legs or appendages, actions or locomotions, voice or noise, and other features.
   b. PLANTS differ in size, shape, type, plant structure, and other features.

3. Animals and plants have many kinds of habitats.

   a. ANIMALS have many different kinds of homes.
   b. PLANTS grow in many types of soil, warmth, and moisture.

4. Living things grow and change in their life cycles.

   a. ANIMALS grow and change in many ways. (Life cycle of frog, dogs, and other animals.
   b. PLANTS grow and change in many ways. (Life span, blossoming, being dormant).

5. Living things reproduce their own kind.

   a. ANIMALS give birth to babies, but some lay eggs.
   b. PLANTS reproduce by seeds, runners, bulbs, etc.

6. Living things depend on each other.

   a. ANIMALS depend on plants and other animals for food.
   b. PLANTS depend on animals for CO_2 and fertilizer.

III. PRESENTING BIOLOGICAL SCIENCE CONCEPTS

As we have seen, biological science is all around us. Therefore, if subject matter is available, we can readily take advantage of it. The subject of biological science is an academic one. However, we can incorporate biological science learnings into our classroom without becoming too technical in our approach.

A. How to Develop Basic Concepts in Biological Science

1. Select a major area of biological science. (Ex. Animals)

2. Select a topic in that area. (Ex. Horses)

3. List key science concepts related to the topic which will help the child gain a better understanding.

4. Organize materials for effective classroom use.

B. Biological Science Learning Experience

1. Constructing a terrarium

2. Going on a nature walk

3. Planting a garden

4. Caring for a pet

5. Watching guppies grow

6. Smelling different scents

7. Snapping beans

8. Hatching baby chicks

9. Burying a dead bird

10. Peeling and grating carrots

11. Observing roots from plants

12. Watching yeast in action

13. Observing mold growth

14. Growing plants without soils

15. Finding bones and fossils

16. Looking at pictures of the human system

17. Cooking and observing changes

C. Materials and Techniques to Teach Biological Science

1. Field trips

2. Books on biological science

3. Songs on biological science

4. Poems and fingerplays on biological science

5. Records on biological science

6. Community resources such as farms, zoos, hatcheries, nurseries, and others

7. Special projects (such as aquariums, terrariums)

8. Observat ons of living things

IV. PHYSICAL SCIENCE---AREAS AND CONCEPTS

A. Matter and Energy

1. Matter

a. Solids, liquids and gases are the three forms of matter.
b. Air is a gas, It is all around us and fills space.
c. Water, milk and juice are examples of liquids.
d. Dirt and sand are solids.
e. Vibrating matter produces sound.

2. Energy

a. Energy exists in many forms and is used to change or form the earth's resources.
b. Fuel supplies energy for engines. Examples of fuel are coal and gasoline.
c. Energy comes from the sun and from water.

B. Earth and Universe

1. Weather---Clouds, sunshine, wind, lightening, thunder

2. Precipitation---Rain, snow, sleet, hail

3. Seasons---Spring, summer, fall, winter

4. Earth surface---soil, rocks, water, minerals, erosion, gravity

5. Geography---Maps, different terrains, etc.

6. Constellations---Moon, sun, stars, and planets

C. Ecology

1. People and their environment

a. People use animals for pleasure, for food, and for clothing.
b. People use and control light.
c. People use machines to help them.
d. People use energy to ease their work (machines, tools).

e. People must conserve energy (fuel, electricity, heat, sources).
f. People must protect their environment (avoid littering, turn off lights, avoid waste by recycling).

V. PRESENTING PHYSICAL SCIENCE CONCEPTS

As we have seen, physical science is all around us. Therefore, if this subject matter is available, we can readily take advantage of it. The subject of physical science is an academic one. However, we can incorporate physical science learnings into our classroom without becoming too technical in our approach.

A. How to Develop Basic Concepts in Physical Science

1. Select a major area of physical science. (Ex., earth and the universe)
2. Select a topic in that area. (Ex. winter)
3. List key concepts of physical science which will help the child gain a better understanding. (Ex. changes that occur in winter)
4. Organize materials for effective classroom use.

B. Materials and Techniques to Teach Physical Science

1. Field trips
2. Books on physical science concepts
3. Songs on physical science
4. Poems and fingerplays on physical science
5. Records on physical science
6. Community resources such as farms, newspaper office, fire station, etc.
7. Special projects (such as magnets, etc.)

8. Experiments (evaporation, bouyancy, absorption, repellants)

VI. EXPERIMENTS

Experiments are planned to test, to try out ideas, and/or to help children come to accurate conclusions. The steps for conducting an experiment with young children are as follows:

A. State the problem of the experiment in order that children know what they are trying to find out.

B. Decide what is to be done to solve the problem or answer the question.

C. Get the materials needed and organize them.

D. Do the activities agreed upon, encouraging the children to participate when feasible.

E. Observe carefully what happens and write down in simple idea form.

F. Answer the questions.

VI. PHYSICAL SCIENCE LEARNING EXPERIENCES

A. Performing Simple Experiments

1. Dissolving sugar in water
2. Watching ice melt
3. Making ice cream
4. Watching water boil
5. Cooking an egg with the sun
6. Making gelatin
7. Cooking pudding and other simple foods

B. Observing reflections of objects at different times in the day.

C. Sawing and using woodworking materials.

D. Floating objects of different sizes, shapes, and weights in a tub of water.

E. Listening to many sounds and identifying their sources.

F. Discovering what makes shadows by using flashlight.

G. Watching wood burn in a bonfire, and cooking simple foods over an open fire.

H. Exploring nature and identifying different types of rocks and fossils.

I. Collecting rain samples.

J. Constructing wind detectors.

K. Observing and identifying types of clouds.

L. Comparing weights of many objects of different sizes and shapes.

M. Observing heat friction from rubbing rocks together.

N. Using a magnet with various objects.

O. Using simple machines.

P. Use songs, poetry, pictures, and fingerplays to stimulate thinking in developing a scientific concept. For example: "The Rainbow Song".

"Red and yellow and blue and green
Purple and orange too--
I can sing a Rainbow, Sing a Rainbow,
You can sing a Rainbow, too."

Q. <u>Develop the Following Ideas</u>

1. Use prisms to make rainbows.

2. Set a glass of water in a sunlit window to make a rainbow on the ceiling or floor from refracted light. Add a mirror to the

glass of water.

3. Have a few spray water from a hose on a sunny day to make a rainbow.

4. Introduce color paddles (commercial or pieces of primary and secondary colors of cellophane) as you sing.

5. Identify and match crayons, construction paper, or tissue paper of primary and secondary colors with colors children are wearing. Repeat the song and hold up matching colors. Encourage children with matching colors to move or stand as you sing a song of colors.

6. Identify colors and mixtures of colors in playdough and with watercolors, tempera paints, and food coloring in whipped soap flakes.

7. Encourage children to write group poetry using colors.

   a. When I wear blue I feel . . .
   b. When I wear red I feel . . .
   c. Convert poetry to song and dramatize it.

VIII. DO'S AND DON'T FOR THE TEACHER

A. Do ---

1. Have a Science Center: shelves or a table where children can display, look at, and pick up rocks, a bird's nest or a bug.

2. Make science part of the daily experience.

3. Use seasonal or weather changes to pave the way to discussing--- For example: Plant growth or cloud formation.

4. Apply scientific principles to classroom situations.

5. Be cheerful, even if you're tired. Be interested, curious, and even excited sometimes. Be open, responsive, and communicative.

6. Relate the child to the science discussion.

7. Perform experiments in small groups, not large groups. Stand the children around the table where each one can see.

8. Encourage every effort, even the unsuccessful ones.

9. Be sure the child knows he has had success.

B. Don't ---

1. Treat experiments as if they were feats of magic.

2. Set up rigid units of study to be completed in a given time.

3. Plan science experiences that show the consequences of certain actions.

4. Try to teach everything.

5. Overlook the hobbies and talents of parents.

6. Just establish facts. Our goals are to extend experience, stimulate awareness, learn to solve problems, and develop curiosity, not to get the right answer.

7. Use dangerous equipment.

8. Be afraid to say, "I don't know." But remember to take the child's question seriously and try to find out for him.

9. Let one child dominate the group.

CHAPTER XIV

TEACHER RESOURCES

INTRODUCTION

Activities for young children must be organized to be effective and require evaluation to determine their effectiveness. Through the use of an activity file card system, the individual teacher can better organize his/her time to meet the individual needs of the children.

When activity plans are written in a uniform fashion and kept in an organized manner, a volunteer, aide, or substitute can become familiar with what is being done and be of assistance to the teacher. In addition, the file cards provide a useful reference for future teaching of young children and provide a resource when the teacher is at a loss for activity ideas.

ESSENTIAL CONTENT INFORMATION

I. SETTING UP THE ACTIVITY CARD FILE

A. Procedures for Developing the File

1. Obtain a 5" x 8" file box and file cards.
2. Divide the file into your chosen curriculum divisions.
3. Develop learning activities for each curriculum division to carry out your yearly and weekly program plans.
4. Keep extra cards available to write up new activities you learn from other teachers and at workshops.

B. Suggested Curriculum Divisions

1. Topical

    a. Art
    b. Body skills
    c. Family
    d. Health
    e. Language
    f. Mathematics
    g. Movement

h. Music
i. Nutrition
j. Safety
k. Science
l. Self-concept
m. Social Science
n. Transitions

2. Developmental

a. Fine motor
b. Gross motor
c. Social
d. Emotional
e. Cognitive
f. Language
g. Appreciation

II. COMPONENTS OF AN ACTIVITY CARD

A. Teacher Developed Activities

The following format would be used for activities which the individual designs or develops after seeing the activity presented by someone else. It should not be used to duplicate information from a resource which the teacher has available for future use.

1. Concept or Skills---A general topic of what will be taught. This is similar to a teacher goal.

2. Activity---The title of the activity

3. Learning Center---Where this activity will typically be done in the classroom or center.

4. Grouping---The size group for which the activity is best suited and/or the age group for which the activity is appropriate.

5. Objective---A statement of the behavior(s) that the child(ren) should be able to perform upon completion of the activity.

6. Materials---A listing of all the items needed for carrying out the activity.

7. Procedures---A sequential listing of all the steps involved in carrying out the activity.

8. Other Concepts or Skills---A list of other concepts or skills (if any) which can be developed by this activity.

9. Other Activities---A list of other activities (if any) which will also teach this concept or skill.

10. Recommendations---(This information should be on the back of the card). A critique of the activity to determine if the objective(s) were accomplished. The recommendations would also include statements useful for future reference about how the activity could be improved, appropriateness for age level, etc.

B. Activities from Resource Books

The following format would be used for activities which can be found detailed in a resource which the teacher possesses or has readily available. It is not necessary to duplicate the information in the resource, but an activity card needs to be written to aid in location of the information.

1. Concept or Skill---A general topic of what will be taught. This is similar to a teacher goal.

2. Activity---The title of the activity

3. Learning Center---Where this activity will typically be done in the classroom or center.

4. Grouping---The size group for which the activity is best suited and/or the age group for which the activity is appropriate.

5. Resource---The title of the resource where this activity is detailed.

6. Page---The page number in the resource where the activity is detailed.

7. Other Concepts or Skills---A list of other concepts or skills (if any) which can be developed by this activity.

8. Other Activities---A list of other activities (if any) which will also teach this concept or skill.

9. Recommendations---(This information should be on the back of the card). A critique of the activity to determine if the objective(s) were accomplished. The recommendations would also include statements useful for future reference about how the activity might be improved, appropriateness for the age level, etc.

III. SAMPLE ACTIVITY CARDS

(See page 70)

IV. RESOURCE UNIT CARDS

A. Definition

A summary of the activities and resources available for teaching a specific concept or theme.

B. Purpose

A resource unit card provides a quick, easy reference for developing weekly and daily plans. It provides an overall picture of of an instructional unit.

C. Components of the Resource Unit Card

1. General concept or theme

2. Specific objectives for the children to accomplish to develop an understanding of the theme or concept

3. Titles of specific activities, resources, field trips, etc. that will be utilized in teaching the concept or theme. (Specific activities will be detailed on activity cards and complete plans will be written in the instructional unit).

4. Resources

a. Books, stories, films, pictures
b. Poems, fingerplays
c. Songs, records, rhythms
d. Dramatic play themes
e. Outdoor activities
f. Art activities
g. Field trips
h. Manipulative materials
i. Visitors
j. Cooking experiences
k. Group discussions
l. Other

V. SAMPLE RESOURCE UNIT CARD

(See page 72)

VI. RESOURCE FILE

A. Definition

An organized collection of materials to support the instructional units. The file includes materials which the teacher will utilize in activities with the children. Utilization of specific materials will be detailed on activity cards.

B. Purpose

To provide a convenient method for organizing pictures, flannel stories, etc. for utilization while teaching.

C. Organizing the Resource File - Pictures Section

1. Gather a variety of pictures to support the range of concepts you will be presenting to the children.

2. Cut out, mount, and cover with contact paper.

3. Sort pictures into categories.

4. Label folders and file pictures.

5. Similar folders can be made for flannel stories, patterns, picture cards, etc.

6. Concepts which the picture teaches and questions about the picture which will develop a concept should be written on the back of each picture.

D. Organizing the Resource File - Flannel Stories, Puppet Stories, Etc.

1. Sort stories into categories.

2. Label folders and file stories.

3. Include concepts which the story teaches and questions about the story on the story script.

E. Other Materials

1. Transitions

2. Recipes

3. Bulletin board ideas/materials

4. Songs

F. Organizing the Resource File - Children's Books and Stories

1. Write a book card on any children's book or story you feel will teach the concepts of your program, support the themes, entertain the children, teach language, etc.

2. Each book card should contain the following:

   a. Title
   b. Author
   c. Publisher
   d. Date of publication
   e. Cost (if available)
   f. Summary of content
   g. List of concepts the book or story teaches
   h. Where book is located---center, library, home, etc.

3. Sort cards into categories.

4. Label folders and file cards.

5. Sample book card
(See page 74)

G. Organizing the Resource File---Parent Education Materials

1. Gather a variety of materials which are good teaching aids for parents. These may include pamphlets, flyers, booklets, materials which you make yourself, etc.

2. The materials should be ones which you can obtain free or which may be reproduced for distribution.

3. For each piece of material, attach a card listing the following:

   a. Title of material
   b. Where material can be obtained
   c. Contact person, if applicable
   d. Cost (if any)
   e. Basic Concepts which the material presents
   f. Evaluation of the material

4. Sort materials into categories.

5. Label folders and file materials.

ACTIVITY CARD

The following is a reduced sample of the Activity Card for the trainee to write up activities which he/she learns from others, makes up himself/herself, etc. Specific information regarding the development of the card is presented in the "Teacher Resources" chapter of each curriculum book.

Concept/Skill:	Activity:
Learning Center:	Grouping:
Objective:	
Materials:	
Procedures:	
Other Concepts/Skills:	Other Activities:

ACTIVITY CARD

The following is a reduced sample of the Activity Card for the trainee to write up activities which he/she finds in books and materials which he/she owns or has ready access to in the center. Specific information regarding the development of the card is presented in the "Teacher Resources" chapter of each curriculum book.

Concept/Skill:	Activity:
Learning Center:	Grouping:
Resource:	
Page:	
Other Concepts/Skills:	Other Activities:

RESOURCE OR LEARNING UNIT

THEME/CONCEPT/SKILL:			CURRICULUM AREA:	
Books, Stories, Films	Poems, Fingerplays	Songs, Rhythms, Records	Dramatic Play	Gross Motor

RESOURCE OR LEARNING UNIT

THEME/CONCEPT/SKILL:			CURRICULUM AREA:		
Manipulative Materials	Art Activities	Field Trips	Cooking Experiences	Community Visitors	Other

BOOK CARD

The following is a reduced sample of the Book Card for the trainee to write up children's books which he/she reads and has access to for use with the children. Specific information regarding the development of the card is presented in the "Teacher Resources" chapter of the curriculum book.

Concept/Skill:	Title:
Author:	Publisher:
Cost: (If available)	
Summary or description of the content:	
List of all major concepts which the story will teach:	

79

CHAPTER XV

PORTFOLIO DEVELOPMENT

As a part of the assessment and credentialing process for the Child Development Associate Credential, the Candidate (trainee) must develop a Portfolio. The Portfolio should contain materials which present a complete and accurate picture of the Candidate's competence in working with three to five year old children in a group setting.

A. REQUIREMENTS

Child Development Associate Consortium guidelines for development of the Portfolio are broad and general. The Portfolio must include (1) a personal profile of the Candidate, of no more than 300 words; (2) thirteen sections, one for each of the functional areas; (3) at least one piece of evidence in each of the thirteen functional areas, accompanied by a written explanation of the reason the evidence is included and the way it demonstrates the Candidate's work with children, and (4) each piece of evidence must be labeled with the functional area.

The Portfolio is not a scrapbook, and pieces of evidence should be selected carefully. Developing the Portfolio should be a learning experience and an outgrowth of the Candidate's training and working with children.

B. OPTIONAL INFORMATION FOR THE PORTFOLIO

The following suggestions for the Portfolio are NOT requirements, but ideas that have proved successful for many candidates during the field test of these materials.

1. Description of the setting, including type of center, information about the children's backgrounds and ages, etc.

2. Beliefs about Early Childhood Education, including a brief discussion of the Candidate's philosophy of early childhood education.

3. For each of the thirteen functional areas, include the following pieces of evidence:
   a. Rationale---a discussion of the reasons the Candidate feels that the functional area is important to a program for young children.
   b. Goals---a listing of the broad goals in the specific functional areas that the Candidate has set for the program and/or the children for the year.
   c. Evidence---two additional pieces of evidence which illustrate the Candidate's competence in each area, including a written explanation for each. (Including these pieces of evidence in the Portfolio will give a minimum of four pieces of evidence for each of the thirteen

functional areas, rather than the one that is required.)

4. Illustrating Evidence---Pieces of evidence may be sketches, photographs, samples, examples, or written descriptions of the activity or item presented. The Candidate would then write a brief explanation showing the ways in which the evidence demonstrates competence in the area and the reason for its being in the Portfolio.

5. Neat and legible---this may be printed, longhand, or typed.

6. Easy to handle---large cumbersome materials and items falling out provide difficulty for each person reviewing the Portfolio. Select a format for the Portfolio and keep it simple and consistent. (Most Candidates have found that a loose leaf notebook or manila folders provide the best format.)

The Portfolio Outline and the Sample Portfolio which follow are designed to provide a guide for trainers and trainees working toward assessment. Through field testing the materials, these guides have proved beneficial to trainees in developing their own individual Portfolios.

PORTFOLIO OUTLINE

I. Entering Materials in the Portfolio

A. Include the title of the functional area and the evidence number in the upper right-hand corner of each piece of evidence.
B. Explain the reason for including the piece of evidence in the specific functional area.
C. Describe how the piece of evidence demonstrates the individual's competence in the functional area.
D. If a piece of evidence pertains to more than one functional area, include it only once, and in the description, note the other area(s) to which it pertains.
E. Mount or index materials in a uniform manner.
F. Be neat and organized.

II. Sample Rationale

Nutrition is vital to the development of preschool children. A knowledge of nutrition is essential for the individuals in a child development center where they are responsible for the health and welfare of each child in the center.

Teachers in a child development center should be committed to the development of the whole child, which means they must develop the ability to plan and prepare nutritious meals and snacks for children. In addition, they must provide experiences in the curriculum to promote good nutrition and mealtime habits in children. Throughout, the teacher must consider the child's developmental level and home environment.

III. Sample Goals

A. Each child will be able to select the foods necessary in a daily balanced diet.
B. Each child will be able to serve many foods for himself/herself.
C. Each child will be able to try new foods prepared in a new way, with a minimum of pursuading.
D. Each child will show a positive increase in physical development.
E. Each child identified as having a nutrition deficiency will be provided with a program to correct the deficiency.

COGNITIVE

Definition
Provides activities and experiences which encourage questioning, probing, and problem solving skills appropriate to the developmental level of each child.

Rationale
Describe the importance of the functional area.

Goals
List the goals for the year for the group to accomplish.

Other Pieces of Evidence might be:
Activity Plans---describe activities for different types of learning and the cognitive development which is fostered; include such things as problem solving; concept development; questioning; and decision making.

Curriculum Areas---describe the curriculum areas which are covered in the program and the goals for each area. Provide the importance of the area for cognitive development and include some activity plans for the various areas.

Equipment and Materials---describe the types of equipment and materials which are used for the development of cognitive skills; include the way the materials are utilized and what materials should be added and why.

Developmental Progress---describe or include the instrument used for recording the developmental progress of the children in cognitive development.

COGNITIVE RATIONALE

Cognitive skills are important because these are the skills for thinking and problem solving. Before children can solve complex problems and cope with the world, they have a lot to learn. I include cognitive learning activities in the program every day and promote concept learning, etc. in all activities. Cognitive activities in my classroom are in all learning centers and every curriculum area. To list these would take pages. First, we cover concepts in areas familiar to the children such as self, family, body, homes and extend these to people of other places, other times, animals, and so on. I bring in at least one new item each week for the "What Is It?" table to broaden their knowledge of everything from science to jobs to places. I try to bring real items but if I can't get them, I bring pictures and models. This really interests the children.

COGNITIVE GOALS

1. To provide daily a variety of materials, equipment and experiences to promote cognitive development.

2. To plan and implement experiences which teach labeling, decision making and problem solving.

3. To give children an opportunity to learn from "real" materials, not just toys. Such as, nuts and bolts, locks, household equipment made non-electrical.

4. To provide as many "hands on" or actual experimentation with materials and equipment.

5. To teach cognitive skills through cooking, math, science, social science, art, music, language and dramatic play.

"WHAT IS IT?"

My "What Is It?" table is moved around the classroom depending on the object. For example, the sewing machine was placed in the dramatic play center. For each item I bring, I also bring pictures or related material to expand on the item. I then plan one activity for each day that relates to the item.

For example: Sewing Machine

1 day - Explore, discuss, decide what it is.
2 day - What is it for? How does it work?
3 day - Who uses it?
4 day - Demonstration of use, Discussion of safety, Use by children.
5 day - Review

Some items have fewer activities others have more.

COGNITIVE ACTIVITY

I think children learn best from experience with real objects when possible. I look and ask everywhere for item so that children can learn about new things.

Insects are something many children (and adults) are afraid of. I have included an activity card describing an activity which I do with the children to help them learn about insects. This activity is done over several days.

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